

Amendment
Serial No. 09/914,240

Docket No. PHF 99,628

IN THE CLAIMS:

1. (Original) For use in an SNR scalable video encoder comprising, for allowing a progressive transmission of information, a base layer circuit capable of receiving an input stream of video images and generating therefrom compressed base layer video data suitable for transmission to a video decoder and at least an enhancement layer circuit capable of generating therefrom enhancement layer video data associated with the compressed base layer video data and suitable for transmission to the video decoder, an encoding method based on a hierarchical triangular mesh representation to which a matching pursuit error coding step is specifically adapted, said encoding method comprising the following steps :

- a base layer encoding step, provided for receiving a couple of reference and current images $N-1$ and N and a coarse mesh and encoding by means of a matching pursuit method the error residual image ε_1 between the current image N and an associated motion compensated image Nc_1 ;

- a first enhancement layer encoding step, provided for receiving said current image and a reconstructed image Nc'_1 obtained by adding to the motion compensated image Nc_1 the motion residual image reconstructed from the coded error residual image ε_1 , and for generating from the difference between said current image and said reconstructed image Nc'_1 a new error residual image ε'_1 used to refine the current level mesh "Mesh 1" towards a new mesh "Mesh 2" then taken as input for a further level, the information concerning the mesh distortion being contained in motion vectors MV_1 ;

- at least another enhancement layer encoding step including similar receiving and generating operations;
the matching pursuit method being applied during each encoding step to the error residual image ε_i in view of the transmission of the image texture information in the form of atoms.

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2. (Withdrawn) For use in an SNR scalable video decoder receiving signals coded by a video encoder implementing an encoding method based on a hierarchical triangular mesh representation to which a matching pursuit error coding step is specifically adapted - said matching pursuit method being applied in view of the transmission of the image texture information in the form of atoms - and comprising a base layer circuit capable of receiving an input stream of video images and generating therefrom compressed base layer video data suitable for transmission to a video decoder and at least an enhancement layer circuit capable of generating therefrom enhancement layer video data associated with the compressed base layer video data and suitable for transmission to the video decoder, a decoding method comprising the following steps :

- a decoding step of the coded, first original image ;
- a decoding step of the following coded images, said coded images being reconstructed from the information related to meshes, transmitted atoms and motion vectors contained in the layers corresponding to each encoding step, said reconstruction operation itself including the successive sub-steps of reconstructing the base layer image, refining said base layer image by applying corresponding motion vectors, and adding image texture information contained in the transmitted atoms.

3. (New) An SNR scalable video encoder comprising, for allowing a progressive transmission of information:

a base layer circuit capable of receiving an input stream of video images and generating therefrom compressed base layer video data suitable for transmission to a video decoder; and

at least an enhancement layer circuit capable of generating therefrom enhancement layer video data associated with the compressed base layer video data and suitable for transmission to the video decoder, said encoder being configured for encoding based on a hierarchical triangular mesh representation to which a matching pursuit error coding step is specifically adapted, said encoding comprising the acts of:

receiving a couple of reference and current images $N-1$ and N and a coarse mesh and encoding by means of a matching pursuit method the error residual image e_1

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between the current image N and an associated motion compensated image Nc_1 , thereby forming a base layer;

receiving said current image and a reconstructed image $N'c_1$ obtained by adding to the motion compensated image Nc_1 the motion residual image reconstructed from the coded error residual image ϵ_1 , and generating from the difference between said current image and said reconstructed image $N'c_1$ a new error residual image ϵ' , used to refine the current level mesh "Mesh 1" towards a new mesh "Mesh 2" then taken as input for a further level, the information concerning the mesh distortion being contained in motion vectors MV_1 , thereby forming a first enhancement layer; and

forming at least another enhancement layer by performing respective receiving and generating operations;

the matching pursuit method being applied during each of said acts to the error residual image ϵ_i in view of the transmission of image texture information in the form of atoms.